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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,266	02/13/2002	Scott V. Thomsen	3691-367	6813

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EXAMINER

ROSSI, JESSICA

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073,266

Applicant(s)

THOMSEN ET AL.

Examiner

Jessica L. Rossi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

Species A (appears to be claims 1-2, 4-16), drawn to an IG window as shown in Figure 1.

Species B (appears to be claims 1, 3-16), drawn to a vehicle windshield as shown in Figure 2.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 1 and 13 are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the

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examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. Note rejoinder will be considered upon the discovery of allowable subject matter, depending on the basis thereof.

3. During a telephone conversation with Mr. Rhoa on 12/8/03 a provisional election was made without traverse to prosecute the invention of Species A, claims 1-2 and 4-16. Affirmation of this election must be made by applicant in replying to this Office action. Claim 3 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 16 is rejected under 35 U.S.C. 102(e) as being anticipated by Medwick et al. (US 2002/0176988).

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**It is noted the present invention is directed to providing a protective layer, such as diamond-like carbon (DLC), over a solar coating that is applied to a glass substrate. The DLC layer protects the coating from scratches during shipping/transporting/handling of the substrate. The DLC coating is removed from the substrate during a heating step, which takes place before the substrate is assembled with another substrate to form an article, such as an IG window. (p. 1, [0001]; p. 7, [0028])*

With respect to claim 16, Medwick is directed to a method of making a window unit (p. 7, [0054]) wherein a temporary protective layer is placed over a solar coating on a glass substrate to protect the coating from scratches during shipping/handling of the substrate (abstract; p. 1, [0002] and [0005]).

The reference teaches providing a solar control coating 14 (p. 2, [0011], p. 3, [0024-0025]) on a glass substrate 12 (p. 3, [0023]), depositing at least one temporary protective layer 16 on the glass substrate over the coating (p. 7, [0055]), and heat treating the substrate with the coating and protective layer thereon at a temperature of at least 570°C so that the protective layer burns off (p. 7, [0053]; p. 8, [0057]). The reference teaches incorporating the glass substrate into an IG (insulating glass) unit after this heating step (p. 7, [0054]), wherein the skilled artisan would have appreciated that coupling of the glass substrate of Medwick to another substrate would have to take place in order to form the IG unit, since IG window units comprise at least two glass panes coupled to each other via a spacer(s) with their interior space evacuated and/or filled with a gas (note p. 1-2, [0003], of present specification).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2, 4-10, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Medwick et al. in view of Veerasamy (WO 00/66506).

With respect to claim 1, Applicants are directed to paragraph 6 above for a discussion of the method steps of Medwick. The reference teaches the solar coating 14 comprising at least one Ag layer (p. 3, [0025-0026]) and the protective layer 16 comprising anywhere from 50-100% by weight carbon (p. 7, [0055]). The reference is silent as to the carbon protective layer comprising DLC.

It is known in the art to provide a DLC layer 3 over a solar coating (not shown) on a glass substrate 1, wherein the DLC layer protects the coating and substrate from scratches during shipping/handling, as taught by Veerasamy (p. 10, lines 16-21; p. 18, lines 10-18; p. 21, line 5). Veerasamy also teaches using the DLC coating to repel dirt and make the coated glass substrate less susceptible to visible corrosion on its surfaces, after the substrate has been assembled with another substrate to form an article, such as an IG window unit (p. 18, lines 10-18; p. 37, lines 11-15). **Veerasamy acknowledges that the DLC layer is capable of being burned off at high processing temperatures** (p. 37, lines 16-20) and therefore provides a temporary non-porous tungsten disulfide layer over the DLC layer to prevent the same from burning off (p. 38, line 1).

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One reading Veerasamy as a whole would have appreciated that the purpose of preventing burn-off the DLC layer is to achieve the additional benefits of repelling dirt and decreased susceptibility to corrosion, after the coated substrate has been incorporated into an IG unit – something Medwick is NOT concerned with. Therefore, the skilled artisan at the time the invention was made would have been motivated to use DLC for the carbon protective layer of Medwick because such is known in the art as a layer for protecting a coated glass substrate from scratches during shipping/handling, as taught by Veerasamy, wherein such a layer would protect the solar coating and glass substrate of Medwick from scratches while also allowing for its removal during the high temperature heating step of Medwick.

Regarding claim 2, Medwick teaches an IG window unit (p. 7, [0054]).

Regarding claim 4, Medwick teaches heating to at least 570°C (p. 7, [0053]; p. 8, [0057]).

Regarding claim 5, Medwick teaches heating the glass substrate from about 648-704°C to thermally temper the same (p. 7, [0053], p. 8, [0057]). As for the remaining portions of Applicant's claimed range, such would have been obvious to the skilled artisan at the time the invention was made given the closeness of these remaining portions to that taught by Medwick wherein only the expected results would have been achieved. As for a specific heating time, such would have been within purview of the skilled artisan at the time the invention was made depending on the materials used; it being noted that Medwick in view of Veerasamy and the present invention both teach heating a glass substrate having a solar coating and DLC layer thereon at similar temperatures to temper the same.

Regarding claim 6, Medwick teaches burning off the protective coating entirely (p. 7, [0053], p. 8, [0054]).

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Regarding claim 7, Medwick teaches depositing the protective layer (p. 7, [0055]) but is silent as to ion beam deposition using a hydrocarbon inclusive gas in an ion beam source. It would have been obvious to deposit the DLC protective layer using ion beam deposition using a hydrocarbon inclusive gas in an ion beam source because such is known in the art, as taught by Veerasamy (p. 27, lines 8-12; p. 31, lines 20-22), and this is an effective way to deposit such a layer.

Regarding claims 8-9, Veerasamy teaches the DLC having an average hardness of at least 30 GPa (p. 22, lines 9-15).

Regarding claim 10, Veerasamy teaches the DLC including more sp³ carbon-carbon bonds than sp² (p. 7, lines 6-16).

Regarding claim 13, it is noted all these limitations were addressed above with respect to claims 1, 4, 7, and 16.

Regarding claim 14, this limitation was addressed above with respect to claim 2.

Regarding claim 15, Medwick teaches the solar control coating 14 comprising at least one Ag layer and at least first and second dielectric layers on opposite sides of the Ag layer (p. 3, [0026] – p. 4, [0026]).

9. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Medwick et al. and Veerasamy as applied to claim 1 above, and further in view of Arbab et al. (US 5821001).

Regarding claim 11, Medwick teaches the solar coating comprising multiple reflective layers and multiple dielectric layers (p. 3, [0026]) but is silent as to a second Ag layer spaced from the first Ag layer with at least one dielectric layer between them. It would have been obvious to use such a construction for the solar coating of Medwick because such is known in

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the art, as taught by Arbab (column 6, lines 54-56; column 8, line 46 – column 9, line 5; column 10, lines 52-53; column 13, lines 39-46), wherein such a “double-stack” solar coating imparts desirable insulating properties to the window unit.


Regarding claim 12, Medwick teaches the dielectric layers being metal oxides (p. 3, [0026]) but is silent as to a specific metal oxide. It would have been obvious to the skilled artisan at the time the invention was made to use tin oxide because such is known in the art, as taught by Arbab (p. 13, lines 43-46), wherein such a dielectric layer works well with an Ag reflective layer (note Arbab teaches Ag reflective layer between tin oxide layers; p. 13, lines 43-46).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jessica L. Rossi** whose telephone number is **703-305-5419** (571-272-1223 come mid December). The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard D. Crispino can be reached on 703-308-3853. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Jessica L. Rossi
Patent Examiner
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